

General

Title

Surgery: risk-adjusted rate of urgent readmission for the surgical patient group.

Source(s)

Canadian Institute for Health Information (CIHI). Indicator metadata: surgical patients readmitted to hospital. [internet]. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015 May [accessed 2015 Jul 13].

Measure Domain

Primary Measure Domain

Related Health Care Delivery Measures: Use of Services

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the risk-adjusted rate of urgent readmission the surgical patient group.

Rationale

Readmissions to acute care facilities are increasingly being used to measure institutional or regional quality of care and care coordination.

Readmission rates can be influenced by a variety of factors, including the quality of inpatient and outpatient care, effectiveness of the care transition and coordination, and the availability and use of effective community-based disease management programs. While not all urgent readmissions are avoidable, interventions during and after a hospitalization can be effective in reducing readmission rates.

Evidence for Rationale

Ashton CM, Wray NP. A conceptual framework for the study of early readmission as an indicator of quality of care. Soc Sci Med. 1996 Dec;43(11):1533-41. [PubMed](#)

Canadian Institute for Health Information (CIHI). Indicator metadata: surgical patients readmitted to hospital. [internet]. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015 May [accessed 2015 Jul 13].

Feudtner C, Pati S, Goodman DM, Kahn MG, Sharma V, Hutto JH, Levin JE, Slonim AD, Hall M, Shah SS. State-level child health system performance and the likelihood of readmission to children's hospitals. J Pediatr. 2010 Jul;157(1):98-102.e1. [PubMed](#)

Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. N Engl J Med. 2009 Apr 2;360(14):1418-28. [PubMed](#)

Jiang HJ, Wier LM. All-cause hospital readmissions among non-elderly Medicaid patients, 2007. HCUP statistical brief #89. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010.

Liu S, Heaman M, Joseph KS, Liston RM, Huang L, Sauve R, Kramer MS, Maternal Health Study Group of the Canadian Perinatal Surveillance System. Risk of maternal postpartum readmission associated with mode of delivery. Obstet Gynecol Int. 2005 Apr;105(4):836-42. [PubMed](#)

Stone J, Hoffman GJ. Medicare hospital readmissions: issues, policy options and PPACA. Washington (DC): CRS; 2010.

Primary Health Components

Surgery; urgent readmission

Denominator Description

Number of surgical episodes of care discharged between April 1 and March 1 of the fiscal year (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Cases within the denominator with a non-elective readmission within 30 days of discharge after the index episode of care (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Unspecified

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 20 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Priority

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Not within an IOM Care Need

IOM Domain

Not within an IOM Domain

Data Collection for the Measure

Case Finding Period

April 1 to March 1

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Number of surgical episodes of care* discharged between April 1 and March 1 of the fiscal year

Episodes involving inpatient care (Facility Type Code = 1). An episode may start or end in a day surgery setting. Episodes that both start and end in day surgery settings are not included.

Episodes involving surgical inpatient care (major clinical category [MCC] partition code = I [Intervention])

Discharge between April 1 and March 1 of the following year (period of case selection ends on March 1 of the following year to allow for 30 days of follow-up)

Age at admission 20 years and older

Sex recorded as male or female
Canadian resident (Canadian postal code)

Note: Refer to the *General Methodological Notes* document for an illustration of denominator selection (see the "Companion Documents" field).

*An episode of care refers to all contiguous inpatient hospitalizations and same-day surgery visits. Refer to the original measure documentation for additional information on constructing an episode of care.

Exclusions

Records with an invalid health card number
Records with an invalid date of birth (non-Quebec records)
Records with an invalid admission date or time
Records with an invalid discharge date or time
Records with admission category of cadaveric donor or stillbirth (Admission Category Code = R or S)
Episodes with discharge as death, self sign-out or patient not returning from a pass (Discharge Disposition Code = 06, 07 or 12)
Presence of at least one record in the episode with major clinical category (MCC) 17 (Mental Diseases and Disorders)
Presence of at least one record in the episode with MCC 13 (Pregnancy and Childbirth)
Presence of at least one record in the episode with palliative care coded as most responsible diagnosis (MRDx). For Quebec MED-ÉCHO data: Z51.5 coded as MRDx, or cancer (C00–C97) coded as MRDx and Z51.5 coded in any secondary diagnosis field.

Note: Refer to the original measure documentation for the administrative codes.

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Cases within the denominator with a non-elective readmission within 30 days of discharge after the index episode of care

Emergent or urgent (non-elective) readmission to an acute care hospital
(Admission date on readmission record) – (Discharge date on the last record of the index episode of care) less than or equal to 30 days

Exclusions

Presence of at least one record in the episode with one of the following:

Delivery
Chemotherapy for neoplasm as most responsible diagnosis (MRDx)
Admission for mental illness (major clinical category [MCC] = 17)
Admission for palliative care coded as MRDx. For Quebec MED-ÉCHO data: Z51.5 coded as MRDx, or cancer (C00–C97) coded as MRDx and Z51.5 coded in any secondary diagnosis field.
Records with an invalid admission date

Note: Refer to the original measure documentation for the administrative codes.

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Type of Health State

Proxy for Health State

Instruments Used and/or Associated with the Measure

Flowchart: 30-Day Obstetric/Patients Age 19 and Younger/Surgical/Medical Readmission

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Does not apply to this measure (i.e., there is no pre-defined preference for the measure score)

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

- Indicators are reported at the national, provincial/territorial, and regional levels.
- Unless otherwise specified, for indicators based on place of residence, data is reported based on the region of the patient's residence, not region of hospitalization. Consequently, these figures reflect the hospitalization experience of residents of the region wherever they are treated, including out of province, as opposed to the comprehensive activity of the region's hospitals (that will also treat people from outside of the region). Hospitalizations occurring in the U.S. or abroad are not included.
- For indicators based on place of service (where the patient was treated), data is reported based on the administrative region of the facility (e.g., region of hospitalization).
- Rates are standardized or risk-adjusted wherever possible to facilitate comparability across provinces/regions/facilities and over time.

Risk Adjustment

Statistical regression modelling, an indirect method of standardization in risk adjustment, was used to risk-adjust patient characteristics. Risk factors that were controlled for include age, gender and selected pre-admit comorbid diagnoses that were applicable to the indicator. The selected risk factors were identified based on a literature review, clinical evidence and expert group consultations using the principles of appropriateness, viability (i.e., sufficient number of events) and data availability. Risk

factors must be listed as significant pre-admit conditions on the patient's abstract for them to be identified for risk adjustment. For indicators relating to readmission after certain medical conditions (e.g., Readmission After Acute Myocardial Infarction [AMI], Overall Readmission), diagnoses were flagged as risk factors if they were recorded as pre-admit conditions on any of the records within patients' episodes of care. For all other indicators, risk factors were flagged if conditions were recorded as pre-admit diagnoses on the record where the outcome/denominator was abstracted.

Risk-adjusted rates are calculated at the hospital, health administration region and provincial/territorial levels. Regional and provincial risk-adjusted rates are aggregated hospital-level data.

Refer to the *General Methodology Notes* document (see the "Companion Documents" field) for additional information on risk adjustment. Information on Canada averages, model specifications (coefficients and p-values) and International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canadian Enhancement (ICD-10-CA) codes used to flag risk factors can be found in the *Model Specifications* document (see the "Companion Documents" field).

Standard of Comparison

not defined yet

Identifying Information

Original Title

Surgical patients readmitted to hospital.

Measure Collection Name

Health Indicators ePublication 2015

Submitter

Canadian Institute for Health Information - Nonprofit Organization

Developer

Canadian Institute for Health Information - Nonprofit Organization

Funding Source(s)

Canadian Government

Composition of the Group that Developed the Measure

Employees: Canadian Institute for Health Information (CIHI) Health Indicators

Financial Disclosures/Other Potential Conflicts of Interest

None

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 May

Measure Maintenance

Annually

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates a previous version: Canadian Institute for Health Information (CIHI). Health indicators 2013: definitions, data sources and rationale. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2013 May. 89 p.

The measure developer reaffirmed the currency of this measure in April 2016.

Measure Availability

Source available from the [Canadian Institute for Health Information \(CIHI\) Web site](#)

.

For more information, contact CIHI at 4110 Yonge Street, Suite 300, Toronto, Ontario, Canada, M2P 2B7; Phone: 416-481-2002; Fax: 416-481-2950; E-mail: hsp@cihi.ca; Web site: www.cihi.ca

.

Companion Documents

The following are available:

Canadian Institute for Health Information (CIHI). Indicator library: model specifications - clinical indicators, May 2015. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015 May. 28 p. This document is available from the [Canadian Institute for Health Information \(CIHI\) Web site](#)

.

Canadian Institute for Health Information (CIHI). Indicator library: general methodology notes - clinical indicators, March 2015. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015 Mar. 19 p. This document is available from the [CIHI Web site](#) .

Canadian Institute for Health Information (CIHI). Canadian coding standards for version 2015 ICD-10-CA and CCI. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015. 511 p. This document is available from the [CIHI Web site](#) .

Canadian Institute for Health Information (CIHI). Health indicators interactive tool. [internet]. Ottawa (ON): Canadian Institute for Health Information (CIHI); [accessed 2015 Jan 20]. This tool is available from the [CIHI Web site](#) .

NQMC Status

This NQMC summary was completed by ECRI Institute on March 18, 2013. The information was verified by the measure developer on May 17, 2013.

The CIHI informed NQMC that this measure was updated on October 31, 2013 and provided an updated version of the NQMC summary. This NQMC summary was reviewed and updated accordingly by ECRI Institute on February 21, 2014.

This NQMC summary was updated again by ECRI Institute on September 4, 2015. The information was verified by the measure developer on November 6, 2015.

The information was reaffirmed by the measure developer on April 29, 2016.

Copyright Statement

This NQMC summary is based on the original measure, which is subject to the measure developer's copyright restrictions.

Use of Canadian Institute for Health Information's (CIHI) quality measure for research, private study, education, or other non-commercial purposes is permitted where full credit is given to CIHI as author and owner of the quality measure. Any use that is wholly or partly commercial in nature requires CIHI's express written permission.

Questions and inquiries may be directed to: CIHI, Health Indicators, 4110 Yonge Street, Suite 300, Toronto, Ontario, Canada, M2P 2B7; Phone: 416-481-2002; Fax: 416-481-2950.

Production

Source(s)

Canadian Institute for Health Information (CIHI). Indicator metadata: surgical patients readmitted to hospital. [internet]. Ottawa (ON): Canadian Institute for Health Information (CIHI); 2015 May [accessed 2015 Jul 13].

Disclaimer

NQMC Disclaimer

The National Quality Measures Clearinghouse (NQMC) does not develop, produce, approve, or endorse the measures represented on this site.

All measures summarized by NQMC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public and private organizations, other government agencies, health care organizations or plans, individuals, and similar entities.

Measures represented on the NQMC Web site are submitted by measure developers, and are screened solely to determine that they meet the [NQMC Inclusion Criteria](#).

NQMC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or its reliability and/or validity of the quality measures and related materials represented on this site.

Moreover, the views and opinions of developers or authors of measures represented on this site do not necessarily state or reflect those of NQMC, AHRQ, or its contractor, ECRI Institute, and inclusion or

hosting of measures in NQMC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding measure content are directed to contact the measure developer.